Balcones Canyonlands Conservation Plan

2019 Annual Report

(October 1, 2018 – September 30, 2019)

USFWS Regional Section 10(a)(1)(B) Permit No. TE-788841-2

Travis County – City of Austin

Submitted by
The Balcones Canyonlands Conservation Plan
Coordinating Committee
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1. Houston, Dawn. *2019 Westcave Preserve Golden-cheeked Warbler Report.* Westcave Preserve. Prepared for Lower Colorado River Authority. 2019.
2. 4CAVES Institute P.B.C.. *Cave Drip Monitoring FY2019 Report*. Prepared for City of Austin. 2019
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5. Strickland, C. *Pipeline Cave Report 2019.* City of Austin Wildland Conservation Division. 2019.
6. Jenson, A., Watson, J. *Drip Rate Monitoring Data: 2014-2019. 2*019.
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9. Bao, M., Jamal, A., Raj, J., and Sandy, M. *Eudophytic Fungi of Juniperous ashei*. Prepared for City of Austin. 2019.
10. Zara Environmental. *2019 Summary of Cave Management Activities at Pennie's Cave, Travis County, Texas.* Endeavor Real Estate Group. 2019.
11. Strickland, C. *Texas Cave Invertebrates Guide.* 2019
12. Strickland, C., Thompson, D. *Good Thunder Cave.* 2018

Background

On May 2, 1996, the City of Austin and Travis County were jointly issued a U.S. Fish and Wildlife Service (USFWS) regional permit referred to as the Balcones Canyonlands Conservation Plan (BCCP). This permit allows incidental "take" of eight locally occurring endangered species in compliance with Section 10(a)1(B) of the Endangered Species Act (USFWS, 1996a). The 30-year permit covers approximately 561,000 acres in western Travis County identified in the Habitat Conservation Plan and Final Environmental Impact Statement (HCP) (USFWS, 1996b). The permit also covers incidental take of 27 species of concern should any become listed as threatened or endangered during the life of the permit (Table 1).

Table 1 - Species Covered by the Balcones Canyonlands Conservation Plan

Common name	Scientific name	Status
Black-capped vireo	*Vireo atricapilla*	Delisted*
Golden-cheeked warbler**	*Setophaga chrysoparia*	Endangered
Tooth Cave pseudoscorpion	*Tartarocreagris texana*	Endangered
Tooth Cave spider	*Neoleptoneta myopica*	Endangered
Bee Creek Cave harvestman	*Texella reddelli*	Endangered
Bone Cave harvestman	*Texella reyesi*	Endangered
Tooth Cave ground beetle	*Rhadine persephone*	Endangered
Kretschmarr Cave mold beetle	*Texamaurops reddelli*	Endangered
Canyon mock-orange	*Philadelphus ernestii*	Species of Concern
Texabama croton	*Croton alabamensis*	Species of Concern
Flatworm	*Sphalloplana mohri*	Species of Concern
Ostracod	*Candona* sp. nr. *stagnalis*	Species of Concern
Isopod	*Caecidotea reddelli*	Species of Concern
Isopod	*Trichoniscinae* N.S.	Species of Concern
Isopod	*Miktoniscus* N.S.	Species of Concern
Spider	*Cicurina wartoni*	Species of Concern
Spider	*Cicurina ellioti*	Species of Concern
Spider	*Cicurina bandida*	Species of Concern
Spider	*Cicurina reddelli*	Species of Concern
Spider	*Cicurina reyesi*	Species of Concern
Spider	*Cicurina cueva*	Species of Concern
Spider	*Cicurina travisae*	Species of Concern
Spider	*Neoleptoneta concinna*	Species of Concern
Spider	*Neoleptoneta devia*	Species of Concern
Spider	*Eidmannella reclusa*	Species of Concern
Harvestman	*Texella spinoperca*	Species of Concern
Pseudoscorpion	*Aphrastochthonius* N.S.	Species of Concern
Pseudoscorpion	*Tartarocreagris reddelli*	Species of Concern
Pseudoscorpion	*Tartarocreagris intermedia*	Species of Concern

Pseudoscorpion	*Tartarocreagris* N.S. 3	Species of Concern
Pseudoscorpian	*Tartarocreagris comanche*	Species of Concern
Millipede	*Speodesmus* N.S.	Species of Concern
Ground beetle	*Rhadine s. subterranea*	Species of Concern
Ground beetle	*Rhadine s.mitchelli*	Species of Concern
Ground beetle	*Rhadine austinica*	Species of Concern

*Previously listed as Endangered, the Black-capped vireo was delisted in April 2018

**Scientific reclassification in 2011 from *Dendroica chrysoparia* to *Setophaga chrysoparia*

Permit Requirements

The City of Austin and Travis County (the Permit Holders) are required to assemble and manage a minimum of 30,428 acres of suitable habitat for the golden-cheeked warbler and the black-capped vireo. Additionally, Permit Holders are required to protect and manage populations of canyon mock orange and Texabama croton. The Permit Holders are also required to acquire, manage, and/or ensure protection for 35 karst features which support populations of six species of endangered karst invertebrates and an additional 27 karst features that are known to harbor 25 karst-specific species of concern. This system of managed and protected habitats is known as the Balcones Canyonlands Preserve (BCP or Preserve). The locations of habitat areas and specific karst features proposed for protection are delineated in the HCP (USFWS, 1996b).

Agencies or organizations which enter into formal agreements with the Permit Holders in order to manage designated Preserve lands in accordance with the BCCP are considered Managing Partners. Until 2014, the sole BCP Managing Partner was the Lower Colorado River Authority (LCRA), which manages 390 acres as a portion of the Preserve system. As a Managing Partner, LCRA may mitigate for capital improvement and infrastructure development projects through the mitigation credit system established by the BCCP. On 7 February 2014, the City of Sunset Valley entered into a BCP Managing Partner Agreement and designated 21.585 acres, known as the Gaines Greenbelt, to be included as part of the BCP. The Gaines Greenbelt mitigates for impacts to golden-cheeked warblers, black-capped vireos, and karst species due to maintenance, improvement and public use of the Gaines Greenbelt Trail, and future impacts associated with social trail closure, fencing and signage.

The Nature Conservancy of Texas (TNCTX) and the Travis Audubon Society (TAS) also manage lands for public and environmental benefit within the BCP. In April of 2015 Travis County purchased a conservation easement over 672 acres of the Travis Audubon Society Baker Sanctuary.

The Permit further requires that the Permit Holders submit an annual report which provides the following:

- an annual summary of development activities within the Permit area
- an annual list of tracts for which Participation Certificates were issued
- the amount of funds collected through Participation Certificate and USFWS directed mitigation fees

- the amount of funds expended for land acquisition
- the amount of funds expended for BCP operations and maintenance
- an updated map of BCP lands
- a summary of public use and habitat management activities within the BCP
- copies of all research and investigation reports prepared within the last year.

Development Activity within the Permit Area

The City of Austin development activity report for Fiscal Year 2019 (FY19), which details building permits issued by the City of Austin west of Loop 1 within the Permit area, is located in Appendix A.

The Travis County development activity report for FY19, which details building permits issued by Travis County in precincts 2 and 3 within the Permit area, is located in Appendix B.

Mitigation Credit Balance

The City of Austin's BCP staff administers the Capital Improvement and Infrastructure Development Project mitigation credit system on behalf of the BCCP Coordinating Committee. The mitigation needs of the Permit Holders and the Managing Partner for these projects are provided under the terms of the regional Permit. Mitigation credits are issued at a rate equal to the number of acres within the Preserve system managed under the terms and conditions of the Permit and the HCP/FEIS (U.S. Fish and Wildlife Service, 1996a and 1996b). BCP acreage that was originally mitigation under the BCCP Alternative Determination Process, or another Section 10(a) or Section 7 permit, is not included in this mitigation bank acreage total. Capital improvement and infrastructure development mitigation needs are subtracted from this accumulated "bank" of credits at a rate of one acre of credit per acre of habitat impact, regardless of habitat zone (Table 2).

Table 2 - Infrastructure Projects Mitigated Through the Use of Mitigation Credits in FY19 by Participating Agency

City of Austin	
Starting City of Austin Balance	**11,550.14 acres**
New preserve additions (credits) –	0
Wastewater Replacement - Barrington	0.8
Bullick Hollow Substation	2.7
Bee Creek Substation	1.4
River Place Substation	0.2
Highland Park W/WW Improvements	1.4
William Cannon Corridor Improvements	12.8
Highland Park W/WW Improvements Phase 2	1.1
Rolling Hills West Sewer/WW Extension	2.5
Old Lampasas Dam 3 Modernization	4.6
Remaining Mitigation Credits	**11,522.64 acres**
Travis County	

Starting Travis County Balance	**8,551.003 acres**
New preserve additions (credits)	30.063
Bullick Hollow Left Turn Lane	**0.6**
Bullick Hollow Bicycle Improvements	**1.6**
Circle Drive Bicycle Safety Improvements	**3.7**
Circle Drive Left Turn Lane at Thomas Springs Rd.	**0.1**
Remaining Mitigation Credits	**8,575.066 acres**
Lower Colorado River Authority (LCRA)	
Starting LCRA Balance	**260.93 acres**
New preserve additions (credits) –	0
Lakeway to Marshall Ford Storm Hardening	0.6
Hamilton Substation TL Relocation	0.1
PEC Bullick Hollow System Improvement	**0.1**
Remaining Mitigation Credits	**260.13 acres**

A number of private landowners also manage habitat within the proposed preserve boundaries, often as required under individually issued Section 10(a) permits. These landowners are responsible for reporting in accordance with the terms and conditions of their individual permits directly to the USFWS and their reports are not incorporated into this Annual Report. The Permit Holders strive to cooperate with these entities and private landowners to address species and land management concerns common to all BCP properties.

The City of Austin operates the BCCP Capital Improvement and Infrastructure Development Mitigation Process, and Travis County administers the BCCP Public Participation Process that addresses the mitigation needs of agencies and landowners under the terms of the Permit. The BCCP provides a voluntary, streamlined alternative for agencies and landowners seeking to comply with the Endangered Species Act (the Act). Those entities participating through the BCCP have met their obligations under the Act and may proceed with development under the terms of their respective Participation Agreements. Those agencies and landowners choosing not to participate may comply with the Endangered Species Act by obtaining an individual 10(a) permit from the USFWS.

Participation Certificate Activity

Travis County's Natural Resources Department administers the BCCP Public Participation Process on behalf of the BCCP Coordinating Committee and issues Participation Certificates for cooperating landowners within the Permit area. Descriptions of participation categories are defined in the interlocal agreement entitled "Interlocal Cooperation Agreement between Travis County and the City of Austin Implementing the Balcones Canyonlands Conservation Plan Shared Vision" (City of Austin and Travis County, 1995). As required by the terms of the regional Permit, copies of each Participation Certificate and Habitat Determination map are provided to USFWS Austin Ecological Services office. During FY19, 24 Participation Certificates were issued as follows: six for

subdivisions, one for infrastructure projects, four for single family residential, four for commercial development, one for a park, four for schools, three for residential, and one multi-family residential project (Table 3).

Funds Collected through Participation Certificates

A total of $769,075.00 was collected through the sale of Participation Certificates in FY19 (Table 3). To facilitate a 50/50 split in participation certificate revenue between the City of Austin and Travis County, participants pay the mitigation fee with two checks, half to "BCCP-City of Austin" and the other half to "BCCP-Travis County." The checks are delivered to each agency for separate processing.

Table 3 - FY19 Projects Mitigated Through the Purchase of Participation Certificates

Application Number	Date	Name	Category	Amound Paid
0936	12/7/2018	Patrick & Lauren Riley	SF Residential	$1,100.00
0884	12/13/2018	All Stor Westlake	Commercial	$39,600.00
0930	1/11/2019	Austin Independent School District (AISD)	School	$0.00
0941	1/11/2019	All Stor Champion, LTD	Commercial	$76,450.00
0942	1/22/2019	Matt & Kate Naylor	Residential	$4,675.00
0721-M	2/8/2019	Travisso, Ltd., Heath Melton	Subdivision	$251,350.00
0951	2/21/2019	Pedernales Electric Cooperative (PEC)	Infrastructure	$5,775.00
0952	2/22/2019	Petree	Commercial	$2,475.00
0721-N	3/12/2019	Travisso, Ltd., Heath Melton	Subdivision	$151,250.00
0959	3/26/2019	Van Ravenzwaaij	SF Residential	$6,325.00
0963	4/29/2019	Lott	SF Residential	$100.00
0776O	4/29/2019	Sweetwater Village O, Section 2	Subdivision	$50,600.00
0776P	4/29/2019	Sweetwater Village B, Section 2	Subdivision	$1,925.00
0964	5/3/2019	AISD (Bowie High School)	School	$0.00
0961	5/13/2019	Sharrock	Residential	$3,575.00
0872	7/1/2019	Round Rock ISD	School	$0.00
0905	8/12/2019	Allen and Allen Custom Homes	Multi-Family Residential	$31,350.00
0721-O	8/13/2019	Travisso, Ltd., Heath Melton	Subdivision	$25,300.00
0958	8/26/2019	Kartzke	SF Residential	$2,000.00
0968	8/29/2019	Lake Travis ISD - Vail Divide	School	$0.00
0969	8/29/2019	Bhattacharya	Residential	$13,750.00
0962	8/30/2019	Strand	Subdivision	$42,900.00
0970	9/9/2019	Spirit in the Hills Lutheran Church	Commercial	$275.00
0957	9/10/2019	City of Lago Vista	Park	$58,300.00
			Total	$769,075.00

Funds Collected through Tax Benefit Financing

Travis County's Tax Benefit Financing Plan is a funding mechanism outlined in the "Interlocal Cooperation Agreement between Travis County and the City of Austin implementing the Balcones Canyonlands Conservation Plan Shared Vision" (City of Austin and Travis County, 1995). It is the method Travis County agreed to use for funding land acquisition and management. In FY19, Travis County's Tax Benefit Financing Plan generated $18,827,868.00 for Travis County's land acquisition and management projects.

Funds Expended for Land Acquisition

The Permit Holders received $60,584,037 in federal grant funds from 1997 to 2010 through the USFWS Section 6 HCP Land Acquisition Assistance Program. With the required match, a total of $81,222,130 was spent on grant-funded BCP Preserve Acquisition, as indicated in Table 4.

Table 4 - USFWS HCP Land Acquisition Grands Received by the Permit Holders, 1997-2010

Year	Federal Grant Funds	Minimum Local Match *	Total Grant	Local Recipient
1997	$1,000,000	$333,333	$1,333,333	City of Austin
1998	$2,000,000	$666,667	$2,666,666	Travis County
1999	$1,500,000	$500,000	$2,000,000	Travis County
2000	$4,140,000	$1,380,000	$5,520,000	Travis County
2001	$14,362,500	$4,787,500	$19,150,000	City of Austin, Travis County
2002	$10,000,000	$3,333,333	$13,333,333	Travis County
2003	$4,993,794	$1,664,598	$6,658,392	Travis County
2004	$3,375,000	$1,125,000	$4,500,000	Travis County
2005	$6,890,000	$2,296,667	$9,186,667	Travis County
2007	$5,742,500	$1,914,167	$7,656,667	Travis County
2008	$5,250,000	$1,750,000	$7,000,000	Travis County
2010	$1,330,243	$886,829	$2,217,072	Travis County
Total	**$60,584,037**	**$20,563,927**	**$81,222,130**	

* Minimum match does not include overmatches

Travis County continues to purchase preserve properties using County funds without grant assistance. Fee simple purchases and alternative protection strategies such as conservation easements, donations, and deed transfers have also been utilized. Use of these non-traditional measures provides opportunities to secure in-perpetuity protection for habitat lands that may not otherwise be available.

Travis County expended $953,400.80 in FY19 on non-grant land acquisition activities and secured 53.774 acres for inclusion in the BCP, including caves. The City of Austin did not acquire any BCP land in FY2019 but has several land acquisitions in process that will be completed in 2020. At the end of FY19, the City of Austin owned and managed 13,615 acres of land within the BCP and Travis County managed 12,374 acres of land within the BCP. For a detailed account of all BCP tracts assembled see Appendices C, D, and E. All City of Austin and Travis County FY19 BCP land acquisitions are shown by tract in Table 5.

Table 5 - Travis County FY19 BCP Land Acquisitions.

Tract Name	Agency	Date Acquired	Acreage	Total Expenditures
Brown CE	Travis County	1/17/2019	8.194	$0
Trails End Seven 05	Travis County	11/30/2018	30.063	$872,271.50
RRISD McNeil High School *cave property	Travis County	7/1/2019	15.123	$0
Twidwell *cave property	Travis County	6/27/2019	0.394	$81,129.30
		Total	**53.774**	**$953,400.80**

*The City of Austin did not acquire any BCP land in FY2019 but has several land acquisitions in process that will be completed in 2020.

Funds Expended for Operations and Maintenance

In FY19, the Permit Holders, LCRA, TNCTX, the Travis Audubon Society (TAS) and the City of Sunset Valley spent $8,380,324 on operation and maintenance of BCP lands (Table 6).

The City of Austin spent a total of $2,184,283 for FY19 to fund BCP management expenditures by the Austin Water Wildland Conservation Division - Balcones Canyonlands Preserve Program (WCD-BCP). This figure understates the City's total expenditures on this program since it does not include (1) work by other staff in Austin Water on program administration and support; (2) operation and maintenance expenditures by Austin Parks and Recreation Department (PARD) operations on BCP-designated parkland; or (3) capital improvement projects related to offices, and other facilities/ infrastructure. The aforementioned expenditures cannot be readily determined from their program budgets.

Table 6 - Annual FY17 through FY19 BCP Budgets (excluding land acquisition costs) for Permit Holders, the Managing Partners, and Cooperating Entities with Summary of Total Budgets since Plan Inception.

BCP Partner	FY 2017	FY 2018	FY 2019	Total Budget: 1996 to Present
City of Austin*	$1,768,118	$1,774,183	$2,184,283	Up to FY 18 $22,663,635
Travis County	$2,188,286	$2,492,553	$6,096,477	Up to FY 19 $25,140,106
LCRA**	$10,200	$69,903.00	$4,564.00	Up to FY 19 $1,816,888
TNCTX	$30,000	$10,000	$10,000	Up to FY 19 $1,100,000
TAS	$85,000	$85,000	$85,000	Up to FY 19 $391,986
City of Sunset Valley	$0	$2,619.08	$0	Up to FY 19 $18,861
TOTALS	**$4,081,604**	**$4,434,258.08**	**$8,380,324**	Up to FY 19 $51,101,427

* City of Austin budget includes BCCP Participation funds.

** Does not include expenditures by Westcave Preserve Corporation

In FY2018 the City of Sunset Valley hired a consultant to survey Gaines Greenbelt, and this cost is reflected as the budget above (Table 6). The City of Sunset Valley does not track staff time related to open space management for budgetary purposes. Therefore there are no operation and maintenance costs available for the City of Sunset Valley's management of Gaines Greenbelt.

The Travis County Natural Resources budget for the BCP Program in FY19 was $7,049,877.80. This total includes Travis County General Fund expenditures, BCP Participation funds, funds for land acquisition and funds negotiated and received from private 10(a) holders for land managed by Travis County to support ongoing operations and maintenance of County-managed Conservation Easements. This sum does not include administrative, legal, law enforcement support or non-habitat-related operations and maintenance provided by other Travis County Departments. This sum does not include estimated expenditures by St. Edwards University, which holds a contract to conduct educational programming and management of the County-owned Wild Basin Wilderness Preserve.

Lands Dedicated to the Balcones Canyonlands Preserve

As of FY19, 32,285 acres of black-capped vireo and golden-cheeked warbler habitat have been assembled by the Permit Holders with the assistance of cooperating landowners and entities. Even though the minimum 30,428 acres of endangered bird habitat has now been acquired, additional acreage will still be needed to meet the configuration requirements for the bird habitat blocks by macrosite and to acquire additional specific karst features required in the Permit.

Fifty-three of the 62 karst features which are identified to be protected in the permit have been afforded some level of protection. Eleven additional endangered species karst features which are not listed on the permit are also protected on BCP land. A map illustrating the current status of the BCP is enclosed as Appendix E. Summaries of BCP lands sorted by macrosite and managing entity are attached as Appendices C and D, respectively.

FY 2019 Research or Investigative Reports

Research reports for activities that occurred on the BCP are included as Appendices F through S, and T1 through T10. See the table of contents for a list of appendices which include the author and title of each research report.

Public Use, Habitat and Wildlife Monitoring, and Management Activities Occurring within the Balcones Canyonlands Preserve

CITY OF AUSTIN

The following section lists the wildlife and habitat monitoring, management, and public use activities on City of Austin (COA) land counted as part of the BCP. The COA's BCP tracts are managed by WCD-BCP and PARD with different management responsibilities assigned to each entity (Table 7). PARD operations performs regular maintenance such as mowing, trash pickup, management of public access, and some trail management activities, while WCD-BCP staff assumes primary responsibility for BCP management and monitoring.

Table 7 - Management Status of City of Austin BCP Properties

Tract	Primary Management Responsibility	Acreage
Upper Bull Creek Unit (Franklin, Gass, Lucas, Hanks, Lanier, COA Canyon Creek plus MUD tracts, Gardens at Bull Creek, Bowman, and Sam Hamilton Memorial Reserve (former WTP 4 "entire tract")	Austin Water (AW)	1166.50
Middle Bull Creek Unit (Kent Butler Ecological Reserve, Beard Trust)	AW	996.71
Lower Bull Creek Unit (Jester, Forest Ridge, 3M, Hilltop, Gibson/Nott, Hiller, Kruger)	AW	1090.98
Lime Creek (incl. 100 acres of Austin-Simon, Ltd.)	AW	586.70
Parke West, Coldwater/Cowfork, Long Canyon, Vaught Ranch	AW	1393.86
Cortaña	AW	1751.95
Double J&T	AW	1730.00
Reicher Ranch	AW	819.74
Bohls Ranch	AW	450.14

Bohls II	AW	18.81
Sansom	AW	13.00
Senna Hills	AW	35.00
Schramm Ranch	AW	100.63
Vireo Preserve	AW	214.00
Ullrich Water Treatment Plant	AW	18.00
Barton Creek Ventures	AW	13.62
Massey	AW	5.00
	AW Subtotal	**10,404.64**
Bull Creek District Park, Bull Creek Greenbelt	PARD/AW	129.48
St. Edward's Park	PARD/AW	50.00
Barrow Preserve	PARD/AW	8.00
Emma Long Metro Park	PARD/AW	950.00
Commons Ford Park	PARD/AW	115.00
Barton Creek Wilderness Area (Barton Creek Venture)	PARD/AW	1075.24
Barton Creek Greenbelt	PARD/AW	814.64
Friesenhahn	PARD/AW	62
Mt. Bonnell	PARD/AW	6
	PARD/AW Dual-Managed Subtotal	**3,210.36**
	TOTAL ACREAGE	**13,615.00**

******PARD Operations does not manage for Endangered Species; they perform regular maintenance, i.e. mowing, trash pickup, manage public access, and some trail management activities. AW staff provides BCP management activities.

Table 8 - City of Austin Monitoring and Management Activities on BCP Tracts within the Bull Creek Macrosite

	Monitoring and Management Activities on the Balcones Canyonlands Preserve (City of Austin tracts)	Bull Creek macrosite																				
		upper Bull Creek unit										middle unit			lower Bull Creek unit								
		Bowman	Canyon Creek	Canyon Creek MUD tracts 1 to 3	Franklin	Gardens at Bull Creek	Gass	Hanks	Lucas	Lanier	Sam Hamilton Memorial Reserve	Beard Trust	Kent Butler Ecological Resv	Jester Estates Cave Preserve	Barrow Preserve	Bull Cr. Greenblt.	Forest Ridge	Gibson/Nott	Hiller/Hilltop	Jester	Krueger	St. Edwards Park	3M
Monitoring Activities	mist-net, band, and spot-map golden-cheeked warblers										X		X				X						
	search for banded golden-cheeked warblers										X		X				X	X	X	X	X	X	X
	mist-net, band, and spot-map black-capped vireos												X				X						
	karst monitoring (faunal surveys, cricket counts, karst feature searches)			X							X		X	X			X			X			
	spring/stream monitoring (including Jollyville Plateau Salamanders)				X			X				X	X			X	X		X	X	X	X	X
	bracted twistflower monitoring															X							
	canyon mock-orange monitoring												X										
	vegetation monitoring				X					X	X						X						
	fuel moisture sampling of junipers																						
	deer & hog trap photo monitoring		X		X			X		X	X	X	X										X
	monitoring of oak wilt							X															
Management Activities	deer control		X		X					X	X												
	feral hog control		X		X					X	X	X	X										X
	red imported fire ant control													X									
	habitat restoration (native plants & karst)			X	X			X			X		X				X			X			
	non-native plant control	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X
	trash removal	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X
	patrol for evidence of trespass, vandalism, or dumping	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	maintenance of roads, fences, signs	X	X	X	X	X	X	X	X	X	X	X	X	X			X			X	X	X	X
	inspect utility corridor maintenance		X		X	X	X					X	X				X			X			X

Table 9 - City of Austin Monitoring and Management Activities on BCP Tracts within the Barton Creek, Cypress Creek, North Lake Austin, South Lake Austin, and West Austin Macrosites

	Monitoring and Management Activities on the Balcones Canyonlands Preserve (City of Austin tracts)	Barton Creek Wilderness	Barton Creek Greenbelt	Bohls II	Friesenhahn	Senna Hills	Austin-Simon	Lime Creek	Coldwater	Cortaña	Cowfork/Vaught	Emma Long	Long Canyon	Parke West	Bohls	Commons Ford	JJ&T/Sansom	Reicher Ranch	Schramm Ranch	Mount Bonnell	Ullrich	Vireo Preserve
Monitoring Activities	mist-net, band, and spot-map golden-cheeked warblers	X	X							X		X					X	X				X
	search for banded golden-cheeked warblers	X	X							X		X	X				X	X				X
	mist-net, band, and spot-map black-capped vireos									X					X							X
	karst monitoring (faunal surveys, cricket counts, karst feature searches)	X	X					X		X				X							X	X
	spring/stream monitoring (including Jollyville Plateau Salamanders)	X	X					X		X	X		X	X							X	
	bracted twistflower monitoring	X	X																	X	X	X
	canyon mock-orange monitoring																					X
	vegetation monitoring									X						X		X				X
	fuel moisture sampling of junipers									X								X				
	deer & feral hog trap photo monitoring							X						X	X		X					
	monitoring of oak wilt	X			X					X		X					X	X				X
Management Activities	deer control							X							X		X					
	feral hog control																X					
	red imported fire ant control						X	X		X				X								
	habitat restoration (native plants, karst)	X	X							X	X		X	X			X	X				X
	non-native plant control	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	trash removal	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	patrol for evidence of trespass, vandalism, or dumping	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	maintenance of roads, fences, signs	X	X		X			X		X		X		X	X		X	X				X
	inspect utility corridor maintenance	X	X		X			X		X		X										X

Table 10 - City of Austin Monitoring and Management Activities on Karst Preserves

	Monitoring and Management Activities on the Balcones Canyonlands Preserve (City of Austin tracts)	Karst Preserves										
		Village at Western Oaks Karst	William H Russell Karst Prese	Goat Cave Karst Preserve	Dick Nichols Park	Testudo Tube Cave Karst Pre	Circle C Metro Park	Tabor tract (WQPL)	Stillhouse Hollow Preserve	Schroeter Park	Shoal Creek Greenbelt	Massey Tract
Monitoring Activities	mist-net, band, and spot-map golden-cheeked warblers											
	search for banded golden-cheeked warblers											
	mist-net, band, and spot-map black-capped vireos											
	karst monitoring (faunal surveys, cricket counts, karst feature searches)	X	X	X	X	X	X	X	X			X
	spring/stream monitoring (including Jollyville Plateau Salamanders)										X	
	bracted twistflower monitoring											
	canyon mock-orange monitoring											
	vegetation monitoring											
	fuel moisture sampling of junipers											
	deer & hog trap photo monitoring											
	monitoring of oak wilt		X	X								X
Management Activities	deer control											
	feral hog control											
	red imported fire ant control	X	X	X		X	X	X				
	habitat restoration (native plants & karst)	X	X	X			X	X	X			X
	non-native plant control	X	X	X	X	X	X		X	X	X	
	trash removal	X	X	X	X	X	X	X	X	X	X	
	patrol for evidence of trespass, vandalism, or dumping	X	X	X	X	X	X	X	X	X	X	X
	maintenance of roads, fences, signs	X	X	X		X	X		X			
	inspect utility corridor maintenance											

In addition to the activities in the tables above, BCP staff conducted or coordinated the following activities within each macrosite. Activities specific to golden-cheeked warbler, black capped vireo, and karst invertebrates are covered in separate species reports.

BARTON CREEK MACROSITE

Barton Creek Wilderness Area and Greenbelt, and the Friesenhahn tract

- Established a new Golden-cheeked Warbler intensive study plot at the western end of the Barton Creek Wilderness, anticipating changes to the habitat on private property immediately to the west.
- Found 1,067 Bracted Twistflower (*Streptanthus bracteatus*) plants during a one-day census, May 15.
- With assistance from PARD Rangers, continued hand-pulling of a dense growth of seedling exotic plants where parent plants had been removed two years earlier for a shaded fuel break behind the Moonshadow neighborhood.
- Assisted West Lake Hills fire staff with emergency pruning of vegetation encroaching on evacuation route from Sculpture Falls.
- Hosted presentation for BCP, LCRA, and PARD staff by the Texas Dept. of Transportation on proposed alterations of Loop 360 that could affect access to the tract.
- At initiation of Austin Energy, began negotiations with AE and PARD over maintenance access to an electric distribution line behind homes on Cliffstone Cove.

Senna Hills

- Gave orientation to new volunteer land stewards.

BULL CREEK MACROSITE

Upper Bull Creek Unit

Canyon Creek

Worked with Pedernales Electric Cooperative to make certain that the powerline was not touching vegetation.

Canyon Creek MUD (Stovepipe cave karst preserve)

Work was initiated on preliminary stages of a hydrological study, staff and contractors excavated several promising features.

Sam Hamilton Memorial Reserve West

- City of Austin BCP biologists collaborated with researchers Dr. Brian Pickles (University of Reading and Monika Gorzelak (Agriculture Canada) on preparation of a manuscript to report results of the 4-year (2013-2017) shin oak seedling survival study; manuscript accepted for publication in Ecosphere.
- Led the annual summer night hike, focusing on the sounds at night and Jollyville Plateau salamanders.

Lower Bull Creek Unit

Forest Ridge/ Jester

- Prepared and presented hikes for those requesting a permit to hike through the Bull Creek Preserve during Golden-cheeked Warbler breeding season.
- Staff and volunteer workdays to repair trail erosion problems.

Kent Butler Ecological Reserve

- Shaded fuel break completed along urban interface with Jester Estates neighborhood by AFD Wildfire Division.
- An exotic plant mapping and removal contract was awarded to Zarria Environmental. The contract was awarded through a forestry grant from the Office of Development. Mapping and removal was conducted on entire western half of the tract.

Bull Creek Greenbelt

- Found 171 Bracted Twistflowers at the Valburn colony on May 22.

CYPRESS CREEK MACROSITE

Lime Creek/Austin Simon

- Pedernales Electric Cooperative installed utility pole guy wire placement.
- City of Cedar Park repaired section of fence that was damaged by contractors during realignment of Anderson Mill Rd.

NORTH LAKE AUSTIN MACROSITE

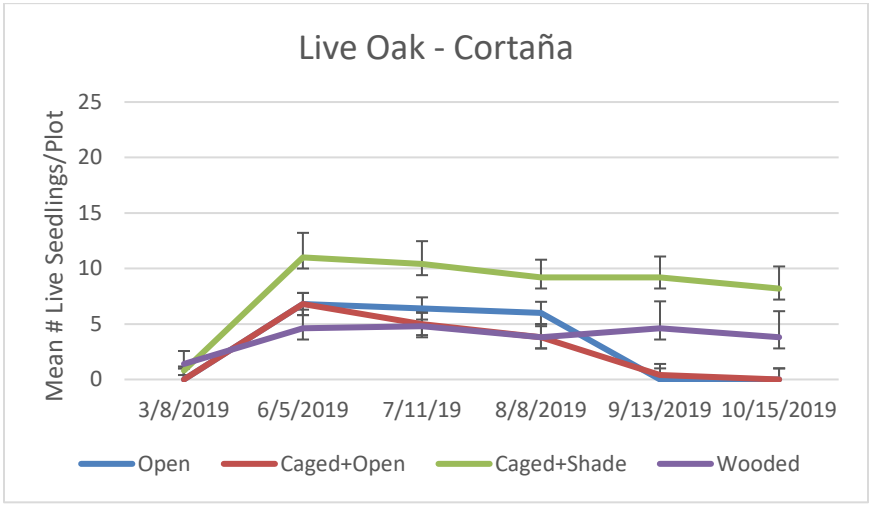
Parke West/Coldwater/Cowfork/Long Canyon/Vaught Ranch

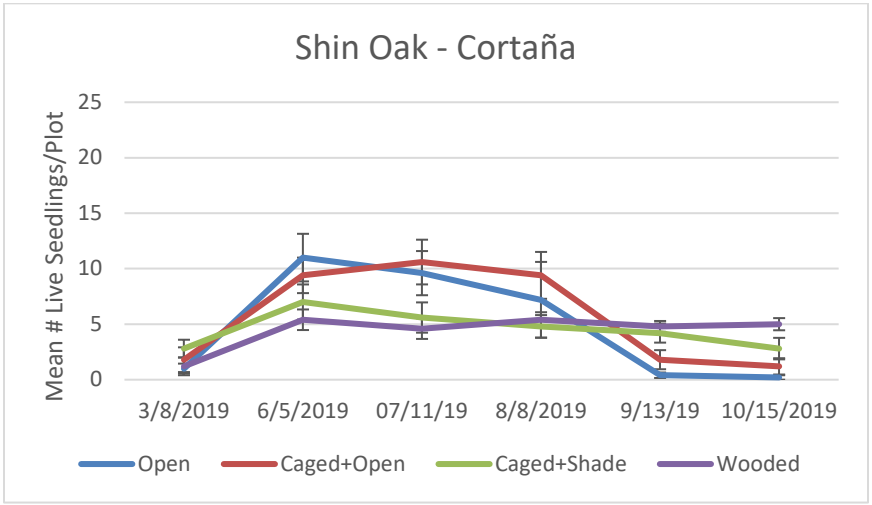
- Western Boundary of Parke West was surveyed in preparation for fencing.
- Work was initiated on preliminary stages of a hydrological study, staff and contractors excavated several promising features.
- American Youth Works' Texas Conservation Corps were contracted for 5 days worth of *Ligustrum sinense* removal, followed up by staff efforts to seed the cleared areas with natives and to chip the pulled material to be used in restoration efforts.
- Emergency pole replacement was identified as necessary on Long Canyon. Staff have met with PEC to plan access and develop a Vegetation Work Plan. City of Austin fence contractors relocated a gate to create a better access point.

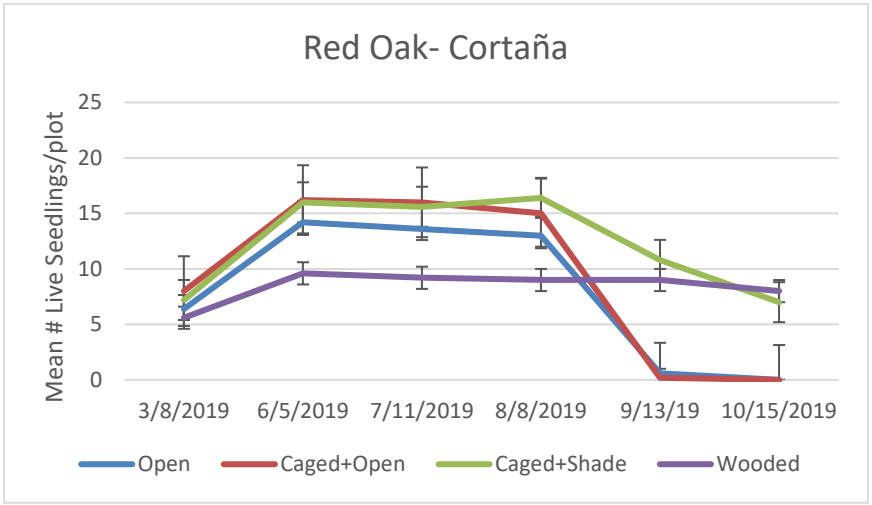
Cortaña

- Trespass from River Place Nature Trail again resulted in a call for emergency rescue, just before Labor Day. Surveyors marked the boundary in preparation for extending the fence from Sun Tree Cove into Panther Hollow to block access, and staff negotiated with Austin Energy on placement of the fence beneath a power line.
- Again found and repaired damage to the fence on the southern boundary of the tract, in connection with dirt bike tracks. With assistance from Travis County game wardens, confronted those responsible for the vandalism. Also found an unauthorized gate installed in the fence, and blocked it, after discussing with the neighbor.
- Directed repair by Austin Energy contractors of a road beneath an electric transmission line that had been badly rutted during maintenance of the lines early in 2018, March. Repair, delayed by spring rains, completed by November 2019.
- Inspected sites where staff in autumn of 2018 planted shin oak (*Quercus sinuata*) acorns, finding germination rates of roughly 50% by June 2019.
- Collected shin oak acorns from the shinnery in October 2019, for use in re-vegetation work and studies elsewhere on the Preserve. A poor harvest compared to the previous year. Planted 126 of these on the cleared ridge south of the shinnery.

- Monitored *Quercus buckleyi*, *Q. fusiformis*, and *Q. sinuata* seedling plots (acorns planted October 2018) in March and monthly from June-October. Below are results to date:







- Planted another 655 shin oak acorns in the mid-Cortaña Black-capped Vireo habitat creation area, in two groups of flagged plantings, so sprouting rates can be estimated.

Emma Long Park and Preserve

- AW BCP and PARD staff continued to meet monthly to discuss conservation issues at Emma Long.
- Conducted searches for the rare orchid, Large-flower/Giant Crested Coralroot (*Hexalectris grandiflora*) but did not find any blooming.
- More trail mapping has been completed for social trails along Turkey Creek with plans to potentially increase trail marking to reduce the opportunities for trail users to accidentally get off of the designated trail.

SOUTH LAKE AUSTIN MACROSITE

BCP staff participated in the Westcave Christmas Bird Count, where the count circle includes this macrosite (Bohls Ranch, Reicher Ranch, and JJ&T).

Bohls

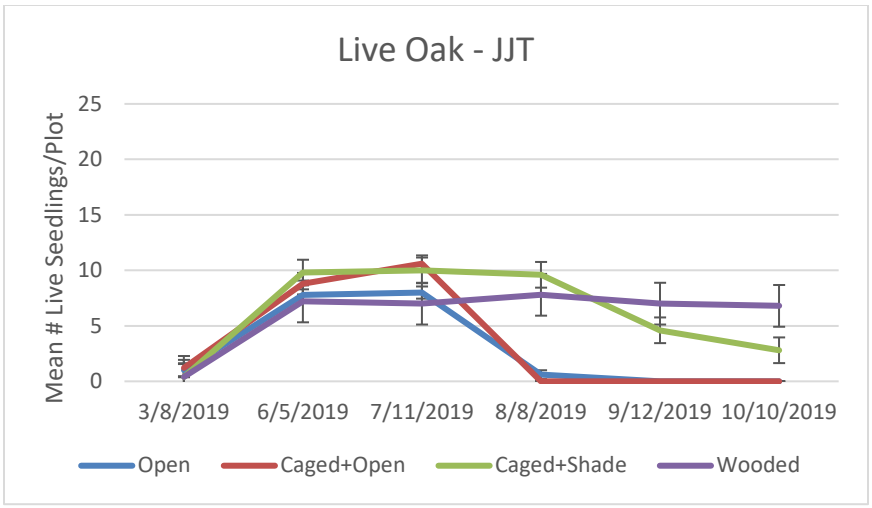
- Shaded fuel break completed along urban interface with Lake Pointe neighborhood by AFD Wildfire Division.

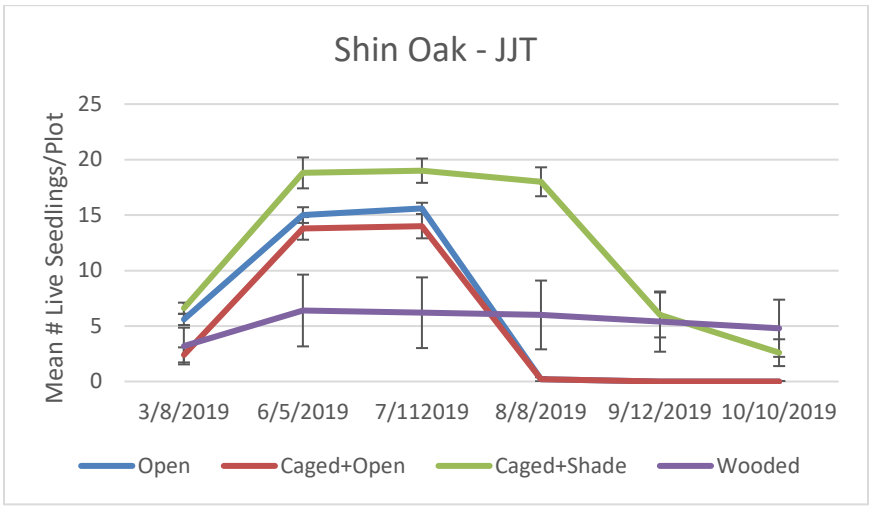
Commons Ford Ranch Park

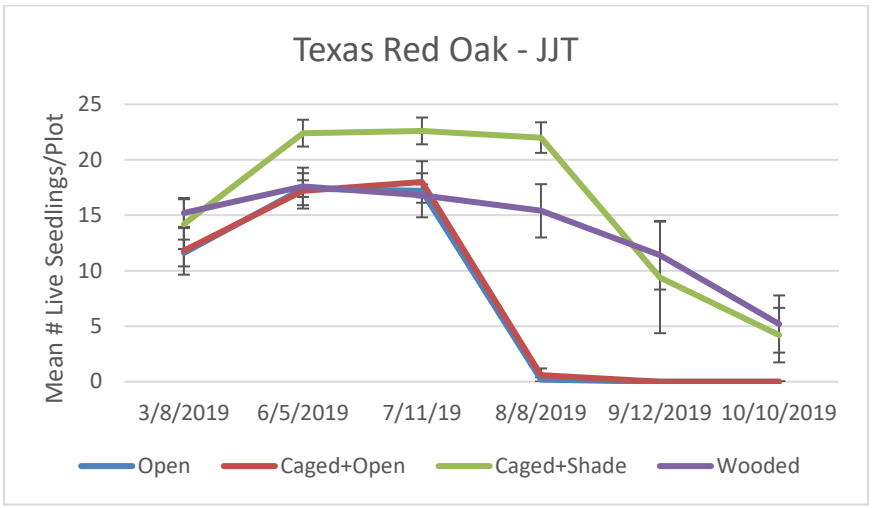
- Ongoing prairie restoration project. Vegetation surveys and Project Prairie Bird surveys conducted by volunteers.

JJ&T

- Monitored *Quercus buckleyi*, *Q. fusiformis*, and *Q. sinuata* seedling plots (acorns planted October 2018) in March and monthly from June-October. Below are results to date:







- Installed a rainwater catchment pole barn for upcoming bioswale project.

Reicher Ranch

- Inoculated *Ligustrum lucidum* logs with Turkey Tail mushrooms in February as part of an expanded study (72 total: 24 inoculated logs, 24 logs with cuts but no inoculum, and 24 logs with no cuts or inoculum). Repeated at two other sites (Vireo Preserve, Lost Creek). Monitored decomposition stage in October.
- Continued restoration of Golden-cheeked Warbler habitat on the grounds of the office headquarters and surrounding areas.
- Continued planting a pollinator garden demonstration area in front of the Caretaker's House.
- Replaced porches of two buildings according to Firewise recommendations.
- Installed a second door on Cana House per City of Austin Fire Building Code.
- Collected *Quercus buckleyi* and *Q. fusiformis* acorns from September-November for use in an expanded seedling survival study at JJ&T and Reicher. Mast year for these two species (few *Q. sinuata* acorns observed on Reicher this year).
- Planted 480 acorns of 3 different species (*Quercus buckleyi*, *Q. fusiformis*, and *Q. sinuata*) on Mount Tabor and Birthday Mountain (2,880 acorns total) under canopy to evaluate effects of aspect (N, E, S, W-facing slopes and on plateau tops).

WEST AUSTIN MACROSITE

Mount Bonnell

- Found 206 Bracted Twistflower (*Streptanthus bracteatus*) plants during a half-day census on May 1.

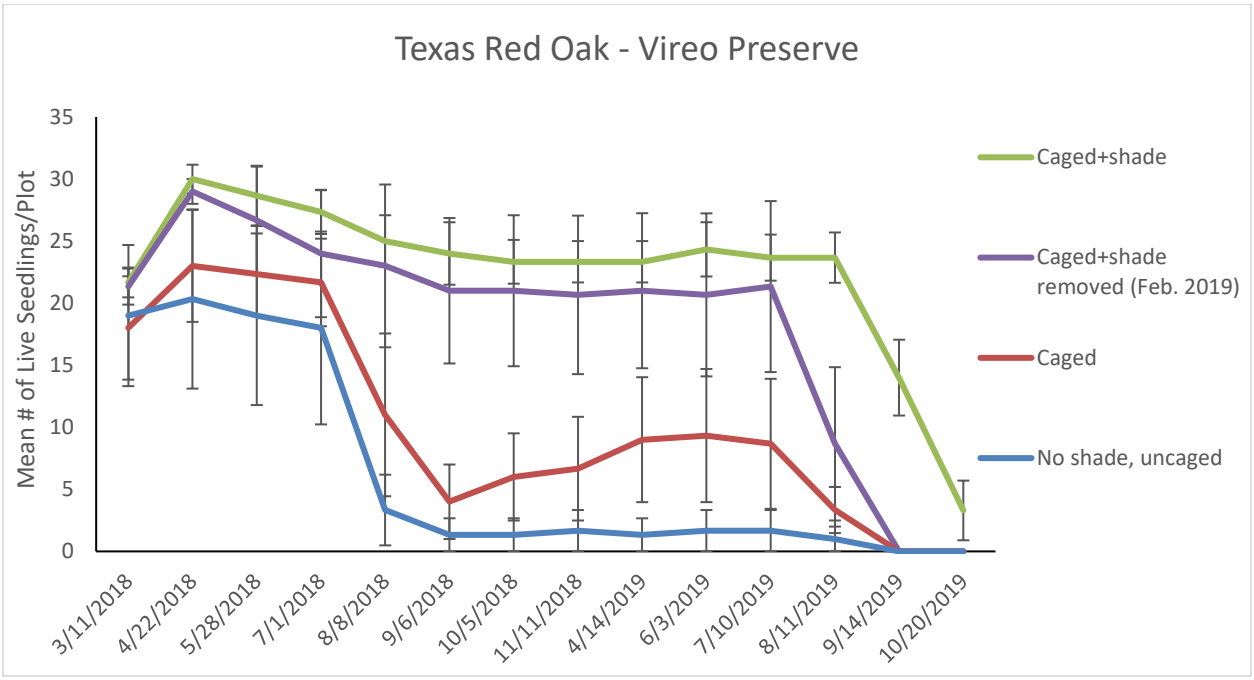
Ullrich WTP

- Found 748 Bracted Twistflower (*Streptanthus bracteatus*) plants during a half-day census on April 26.
- Staff worked to remove canopy exotic invasive species in areas where Bracted Twistflower has historically occurred.

Vireo Preserve

- Built an 1100-gallon rainwater collection system in February and planted about 130 trees in the area ("Scorpion Point")

- CAMN 2019 class designed and implemented two independent projects, one with bioswales and one with sheet mulching (February).
- Inoculated *Ligustrum lucidum* logs with Turkey Tail mushrooms in February as part of an expanded study (72 total: 24 inoculated logs, 24 logs with cuts but no inoculum, and 24 logs with no cuts or inoculum). Repeated at two other sites (Reicher, Lost Creek). Monitored decomposition stage in October.
- Land steward hike guide training in March and August.
- Earth Repair Corps interviewed Jim O'Donnell and took photographs of the Scorpion Point project, and posted the article in their newsletter (The Dirt) in March.
- Sacred Journey school conducted day-long herbal classes in February and October.
- Led a tour for new Defenders of Wildlife staff (Paul Sanchez-Navarro) on April 26.
- Provided a two-day training for PARD cadette rangers in June.
- Led a night hike on August 9.
- Americorps built pollinator gardens in September.
- Hosted the AW Executive retreat on September 27.
- Implemented bioswale project (Van Dyck Earthworks & Design) in October. Provided a tour for EPA and FEMA staff. Planted 138 trees and shrubs on the berms.
- Surveyed Bracted Twistflowers on April 28, no plants found.
- In February, removed shade cloth from one set of *Quercus buckleyi* seedling plots (acorns planted November 2017). Monitored plots monthly in April and from June-October. Below are results to date:



- Collected *Quercus buckleyi* and *Q. fusiformis* acorns from September-November for use in an expanded seedling survival study at JJ&T and Reicher. Mast year for these two species (few *Q. sinuata* acorns found on Vireo Preserve this year).
- A core group of 10-15 volunteers assisted with habitat restoration, removal of invasive plants, erosion control, and patrols. Volunteer workdays are held weekly from March-June and four times a week the rest of the year.
- Planted many woody and herbaceous plants from the BCP greenhouse and local nurseries and seeded areas with native grasses and wildflowers.
- Since Vireo Preserve supports many of the habitat types observed throughout the BCP and is easily accessible, it is an ideal site to experiment with habitat creation and restoration techniques. Lessons learned at this site should be applicable to other areas within the BCP. We are continuing adaptive management efforts initiated in 2011 to restore areas degraded by past land use by building soils, controlling erosion, and increasing diversity, with the goal of creating and enhancing endangered species habitat. Adaptive management includes installing berms and swales on contour to capture, spread, and sink water, and using locally and commercially available materials (mulch, mulch socks, mycorrhizal fungi, soil amendments, native seed and plants, native saprophytic mushrooms) to help rebuild soils and promote regeneration of woody plants. Mulch is a

common by-product of juniper-oak forest clearing and thus readily available for habitat restoration projects. Allowing mulch to age and "compost" contributes additional nutrients and micro-organisms. Other soil amendments used to date include organic fertilizers, composts, and/or native mycorrhizal fungi inoculants.

FY 2019 BCP Partners Outreach

Each quarter, BCP partners with outreach programs meet to coordinate efforts and produce a summary report for the Coordinating Committee that includes the number of people reached and the number of volunteer hours completed, as well as highlights from that time period. An annual summary is provided in the final report of the year and is included below as Table 11. The partners included in this report are Travis County, City of Austin, Travis Audubon (Baker Sanctuary), The Nature Conservancy (Barton Creek Habitat Preserve), Westcave Preserve, and St. Edward's University (Wild Basin Wilderness Preserve).

Table 11 - Summary of FY19 BCP Outreach and Education Activities

Activity	Location	Events	Youth	Adults	Volunteer Hours
Guided Hikes	Onsite	549	3,962	5,501	1,000
Programs / Presentations	Onsite	132	3,141	1,382	48.5
	Offsite	37	2,499	2,612	145
Land Stewardship	Onsite	395	370	1,835	5,940.5
Ecological Monitoring	Onsite	224	34	379	2,123.25
Visiting Groups / Educators	Onsite	57	374	759	
Administrative Help	Onsite			3	14
Campouts	Onsite	2	28	43	29
Training	Onsite	15		265	1,070
FY 2019 Total		**1,411**	**10,408**	**12,779**	**10,370.25**

* Monetary value of volunteer work ($25.10/hour): $260,293.28.

TRAVIS COUNTY

Travis County Natural Resources staff conducted a variety of resource monitoring and management activities on County-managed BCP lands in FY19, which are summarized in Tables 12, 13, and 14. The wildlife and plant management activities are described in more detail in Appendices I through N. Additionally, the annual reports for Wild Basin Wilderness Preserve and the Baker Sanctuary can be found in Appendices O and Q, respectively. Wild Basin is owned jointly by Travis County (164 acres) and St. Edwards University (63 acres) and is managed by St. Edwards University under contract with Travis County. Travis Audubon Society owns and manages the 715 acre Baker Sanctuary as part of the BCP, with Travis County holding a conservation easement over 675 acres of the sanctuary.

Natural Resources Staff changes that occurred in FY19 include:

- Holly Kreiner was hired as an Environmental Specialist in February 2019.
- David Morgan was hired as a Natural Resources Specialist Senior in February 2019.
- Sam Berg was promoted from the Preserve Maintenance Worker Senior position to a Natural Resources Land Management Tech in February 2019.
- Amanda Fernandez was the Natural Resources Wildlife Tech from March to September 2019.
- Kristen Gold, Audrey Kuhl, Nancy Sandoval, and Ben Stubbs worked as temporary Natural Resources Techs from March through August 2019.
- Kristen Koppel served as the Mickey Leland intern from June to August 2019.
- Max Davern was hired as a Preserve Maintenance Worker Senior in September 2019.
- Environmental Specialist, Kelsey Meisenhelder, resigned in September 2019.

Travis County Maintenance Activities

Travis County completed new boundary fence construction on portions of the Kotrla Unit (8,780 linear feet), the Cuevas tract (2,037 linear feet), the Volente Peak tract (2,527 linear feet) and the Steiner Ranch conservation easement (1,642 linear feet). Fence repairs were made on the Lucas tract and the Lime Creek Unit where vehicular accidents had caused fence damage.

An old cave gate at Tooth Cave was removed and a more bat-friendly gate was installed. Cave gates were also installed at Weldon and No Rent caves.

A number of facilities improvements were made in FY19. New security systems were installed at the Natural Resources field office, the maintenance building, and the Snowden House. The driveways and parking areas at the Natural Resources field office and at Wild Basin Wilderness Preserve were paved. A new septic field was installed for the public restrooms at Hamilton Pool Preserve.

Tree planting occurred on the Nootsie and Snowden tracts. Volunteers and staff planted and caged 31 oak saplings on the Nootsie tract. The trees were donated by the Texas Forest Service. Eighteen native trees and shrubs were planted and caged on the Snowden tract to enhance the educational display gardens. These trees were purchased with Travis County tree mitigation funds.

Travis County Infrastructure Corridor Activities

In FY19, LCRA, Pedernales Electric Cooperative (PEC), and Austin Energy coordinated with Natural Resources staff to conduct routine inspections and/or vegetation trimming along utility lines that transect Travis County BCP tracts. This work was done during the winter to avoid the warbler and vireo nesting season.

Table 12 - FY19 monitoring and management activities on Travis County-managed BCP tracts within the Bull Creek and North Lake Austin Macrosites.

	Monitoring and management activities on Travis County-managed BCP tracts	Bull Creek Macrosite								North Lake Austin Macrosite						
		Canyon Vista	Colina Vista	Concordia	Karnik/ Richards/ Wendland	Origer	Ribelin	Sam Hamilton East	Woody Hollow	Franzetti/ Webb	Gray Mountain/ Coldwater Canyon	Greenshores	Hereford/ Lemens	Hunt, Brown, Martin, and Ross Conservation Easements	Steiner Ranch	Woods of Greenshores
Monitoring Activities	spot-map golden-cheeked warblers (intensive plots)	X*														
	spot-map golden-cheeked warblers (tract-wide survey)			X		X			X						X	
	spot-map black-capped vireos			X			X	X								
	presence/absence survey for black-capped vireos						X	X							X	
	karst surface monitoring															
	karst faunal surveys															
	cave cricket exit counts															
	Jollyville plateau salamander surveys						X	X								
	Water quality						X	X								
	deer surveys															
Management Activities	deer control															
	feral hog control	X		X	X		X	X		X						
	cowbird control															
	red imported fire ant control															
	non-native plant control	X	X	X	X	X	X	X		X		X			X	X
	black-capped vireo habitat restoration															
	trash removal															
	patrol for evidence of trespass, vandalism, and dumping	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	fence maintenance or construction														X	
	Wildfire fuel mitigation														X	X

* Re-sighting of banded warblers only

Table 13 - FY19 Monitoring and Management Activities on Tracts Managed by Travis County within the Cypress Creek Macrosite.

	Monitoring and management activities on Travis County-managed BCP tracts	Bunten	Collins/ Franklin	Cuevas East	Cuevas/ TSNL/ Blackmore	Crossings	Grandview Hills North	Grandview Hills South	King/ Atwood/ Blake	Lake Perspectives	Lime Creek Unit	Lucas/ Lake Travis Bluffs	New Life	Nootsie	Romberg	Snowden	Spezia	Toops	Trails End/ Seven 05	Wheless	Vireo Ridge/ Stratton	Vista Point	Volente Unit
Monitoring Activities	spot-map golden-cheeked warblers (intensive plots)		X																	X	X*	X	
	spot-map golden-cheeked warblers (tract-wide survey)			X	X	X		X					X				X	X		X			
	spot-map black-capped vireos																				X	X	
	presence/absence survey for black-capped vireos											X								X	X	X	
	karst surface monitoring		X	X	X		X					X								X	X	X	
	karst faunal surveys			X	X		X					X										X	
	cave cricket exit counts			X	X							X											
	Jollyville Plateau salamander surveys	X																					
	water quality	X																					
	deer surveys						X							X		X					X		X
Management Activities	deer control															X					X		X
	feral hog control																						
	cowbird control													X				X			X		
	red imported fire ant control			X	X		X	X				X										X	
	non-native plant control	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	black-capped vireo habitat restoration																				X		
	trash removal	X	X		X					X	X	X	X	X		X		X	X	X	X		
	patrol for evidence of trespass, vandalism, and dumping	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	fence maintenance or construction				X						X	X											X
	Wildfire fuel mitigation																			X			X

* Re-sighting of banded warblers only

Table 14 - FY19 monitoring and management activities on Travis County-managed BCP tracts within the South Lake Austin, Pedernales River, West Austin, Big Sandy Creek Macrosites and Cave Tracts.

Monitoring and management activities on Travis County-managed BCP tracts		South Lake Austin		Pedernales River	West Austin	Big Sandy	Cave Tracts		
		Chandler	Medway	Hamilton Pool/ Martin	Wild Basin	Kotrla Unit	Irelands Cave	McNeil	Starks North Mine/ Twidwell
Monitoring Activities	spot-map golden-cheeked warblers (intensive plots)				X				
	spot-map golden-cheeked warblers (tract-wide survey)			X					
	spot-map black-capped vireos					X			
	presence/absence survey for black-capped vireos			X		X			
	karst surface monitoring					X	X	X	X
	karst faunal surveys					X	X	X	X
	cave cricket exit counts					X	X	X	X
	Jollyville plateau salamander surveys								
	Water quality			X	X				
	deer surveys			X		X			
Management Activities	deer control		X			X			
	feral hog control			X		X			
	cowbird control			X		X			
	red imported fire ant control						X		X
	non-native plant control		X		X				X
	black-capped vireo habitat restoration					X			
	trash removal				X				X
	patrol for evidence of trespass, vandalism, and dumping	X	X	X	X	X	X	X	X
	fence maintenance or construction					X			
	Wildfire fuel mitigation				X				X

Travis County Wildfire Mitigation and Preparedness

Travis County staff actively worked on BCP lands and coordinated with neighboring communities to reduce the risk of wildfire and to improve preparedness for wildfire events. The County's Natural Resources Program is committed to 1) ensuring that the safety to the public, firefighters, and staff is the highest priority for all fire management activities; 2) reducing potential impacts to the wildland-urban interface (WUI) from wildfires; and 3) meeting its obligations to protect endangered species habitat.

Fuel mitigation efforts on County-managed BCP lands have focused on the WUI, where preserve tracts abut development, roads, and utility lines. Land management practices within the WUI, such as the creation of shaded fuel breaks, are designed to reduce the likelihood of accidental ignition and to minimize the risk of surface fires spreading into the forest crown. Treated areas become fire adapted, thereby minimizing risk to habitat and adjacent structures.

In FY19, Natural Resources staff coordinated shaded fuel treatment projects on the following BCP tracts: Steiner Ranch, Wild Basin Preserve, Woods of Greenshores, Wheless, and Starks North Mine. Lake Travis Fire & Rescue (ESD 6) and Texas Conservation Corps were contracted to perform most of the work. All of the fuel mitigation activities followed a customized scope of work, derived from the USFWS Best Management Practices for fuel reduction in golden-cheeked warbler habitat. Staff also met with many neighbors and attended neighborhood meetings to promote fire adapted communities and to explain BCP fuel mitigation efforts. Staff collaborated with Emergency Service Districts in disseminating information to the public.

Travis County Conservation Easement Monitoring

Staff conducted annual conservation easement monitoring at nine properties which are privately owned, but are managed as part of the BCP by Travis County through conservation easement agreements. Compliance issues were identified and corrected on four conservation easement properties in FY19.

Travis County Law Enforcement and Preserve Patrol

Law enforcement on all Travis County-managed properties, including County Parks and BCP tracts, are provided by Park Police. Park Police are part of Travis County's Parks Division and are commissioned Texas Peace Officers operating as Deputy Sheriffs under the Travis County Sheriff's Office. The Park Police and Natural Resources staff regularly patrol and inspect County-managed BCP tracts

to look for signs of illegal activity and to assess management needs. Regular patrols provide a visible County presence, thereby minimizing the incidence of unauthorized activities. Patrols also allow staff to inspect fences, locked gates, facilities, trails and roads, and look for resource management issues such as non-native plant and animal encroachment and signs of oak wilt infestation.

In FY19, there were 86 separate occasions when illegal activity was documented on Travis County-managed preserve tracts; however, many of these involved multiple violations (Table 15). While the majority of the incidents were of trespassers on foot documented by surveillance cameras, 25 incidents involved damage to the BCP and seven required law enforcement assistance.

Table 15 - Type and number of illegal activities documented on Travis County-managed BCP lands in FY19.

Type of Illegal Activity	Number of Incidents
Trespass on foot or bicycle (surveillance camera images)	61
Criminal mischief (i.e.-cutting of fences and locks, removing signs, litter)	15
Motorized vehicular trespass	5
Dumping	4
Damage/removal of vegetation	4
Campsite (all had a fire ring constructed)	3
Trespasser encounters	2
Fence damage due to collision	2
Damage to archeological site	1
Baiting of wildlife	1
Trail construction	1
Lost person in distress	1

One of the more serious cases involved long-term camping at the Cuevas East tract. Several individuals had erected shelters and fire rings. These individuals hauled in a significant amount of personal belongings, including chairs, mattresses, propane stoves, and clothing. Two of the individuals were identified and issued Criminal Trespass Warnings in addition to Criminal Warrants. They were also required to clean up the site.

Another serious case involved vegetation damage which occurred when a contractor from an adjacent development drove a piece of heavy machinery onto the Cuevas and Cuevas East tracts, damaging trees in its path. This case was settled when the party at fault paid for damages.

The 61 incidents of trespassing caught on surveillance cameras involved 40 different people, some of whom were accompanied by dogs. Several of these individuals trespassed on numerous occasions. One repeat trespasser on the Volente Unit was issued a Criminal Trespass Warning by Park Police. Nearly half of the 61 images were taken on the Woods of Greenshores tract. This tract was recently acquired and a large part of the boundary is unfenced, thus accounting for the large number of trespassers. While appropriate signage is in place it was often disregarded. New boundary fence construction is in the planning stage and once completed should reduce trespassing on this tract.

Travis County BCP Volunteer Program

In FY19, 309 volunteers donated their time and energy to help maintain Travis County-managed BCP tracts and provide nature education to the community. Volunteers are an integral part of the BCP team, extending the County's capacity, while also increasing awareness of the BCP and BCCP. The volunteers' commitment, energy, and expertise strengthen the BCCP program and broaden the County's impact.

In FY19, volunteers contributed 1,753 hours of labor conducting wildlife surveys, leading guided hikes, controlling invasive species, patrolling BCP boundaries, maintaining trails, and assisting with general land stewardship (Table 16). In addition to benefiting the preserve, the volunteer program also provides a way for people to connect with nature in a meaningful way, and builds a community of people who care about the BCP.

Table 16 - FY19 Travis County BCP Volunteer Hours

Activity	Hours
Land stewardship	652
Invasive species control	888
Biological monitoring & surveying	130.25
Administration	14
Education	68.75
Total	**1,753**



Families volunteering together through Generation Serve swift removed invasive plants from the preserve here



Boy Scout Saavan Myneni built a chimney tower with help of family and friends (pictured with his father)

Volunteer highlights included:

- This was a great year for group volunteering. Seventy employees from four private companies came out to help remove invasive plants and manage the native plant gardens around Snowden House. The County continued its relationship with Texas Conservation Corps, whose crews contributed more than 136 hours maintaining trails and restoring black-capped vireo habitat. For the first time this year, American Conservation Experience volunteered 343 hours removing invasive plants. The County also partnered with local nonprofits and high schools looking for service opportunities, bringing an additional 97 volunteers to the preserve.
- Two Boy Scouts completed their Eagle Scout projects on the preserve this year, building chimney swift towers near the Natural Resources Field Office and Snowden House. The new towers can host large numbers of swifts roosting together in summer months, and could also become nesting sites during the breeding season.
- A small group of committed volunteers worked more than 550 hours maintaining and improving the native plant gardens at Snowden House, including removing invasive plants. Snowden House is used as a starting point for many guided hikes and volunteer projects, and also hosts community presentations and meetings.

Travis County BCP Education & Outreach Program

Travis County continued to expand its education and outreach program in FY19, offering guided hikes throughout the year, providing information about the BCP at community meetings and public events, and offering educational activities and lectures by visiting speakers. Approximately 1,544 individuals were reached through these efforts (Table 17). In addition, thousands of people enjoyed hiking the trails at Hamilton Pool Preserve and Wild Basin Preserve, which are open to the public year-round.

Table 17 - Travis County BCP Education & Outreach Summary for FY19

Activities	Events	People reached
Programs/Presentations	19	571
Guided hikes	25	333
Information table at events	4	604
Visiting Group	2	36
Total	**50**	**1,544**



Participants on an evening hike in September. Photo by Heather Valey.

Outreach highlights in FY19 included:

- The Osher Lifelong Learning Institute at UT Austin hosted a six-week seminar about the Balcones Canyonlands Preserve for its members. In a

series of weekly 90-minute presentations, BCP staff provided an in-depth look at the preserve, exploring the formation of the BCCP, the research and monitoring of the preserve's protected species, and ways the public can get involved. Organized by Travis County in partnership with the City of Austin, the seminar featured 18 speakers from the City and County, Wild Basin Wilderness Preserve, Westcave Outdoor Discovery Center, and Travis Audubon's Baker Sanctuary.

- The Native Plant Society taught a day-long workshop at Snowden House about landscaping with native plants to support birds, which was attended by 28 people from around the state. The workshop included guided tours of the native plant gardens and nearby trails.
- For the first time this year, Travis County staff began leading night hikes during the summer to escape the heat. This gave hikers the opportunity to explore the sights and sounds of nature after sundown, including screech owl calls and scorpions glowing under black light.

LOWER COLORADO RIVER AUTHORITY

Annual Status Report for the Balcones Canyonlands Conservation Plan
October 1st 2018 - September 30th 2019.

Mitigation Credits Used

The Lower Colorado River Authority (LCRA) debited 0.8 acres from its mitigation bank balance between October 2018 and September 2019. LCRA has 260.13 mitigation credits remaining.

Management Highlights

LCRA managed approximately 400 acres as a portion of the preserve system. Management activities for these LCRA preserves continued to focus on natural resource research and management, access management, and stewardship promotion.

McGregor

- In October 2018, Plateau Land and Wildlife Management conduced a wildlife survey at McGregor preserve. These surveys are performed before the harvest period for white-tailed deer. The density results yielded 9.94 acres per deer, which led to the conclusion that harvesting of white-tailed deer was not warranted at the time due to these results.

- In the summer of 2019, Pedernales Electric Cooperative (PEC) requested a 0.0563-acre easement on LCRA's McGregor tract for the purpose of installing an electric distribution line. PEC will remove approximately 600 feet of electric line that currently crosses LCRA's McGregor tract. PEC also stated that they will remove approximately 800 feet of an electric distribution line that currently crosses the Cypress Creek arm of Lake Travis. Removal of these lines will reduce disturbance to the McGregor tract and increase safety to Lake Travis.
- Plateau Land and Wildlife Management completed a camera wildlife survey (white-tailed deer) in September 2019. The density results yielded 10.26 acres per deer, as these are acceptable levels, harvesting of white-tailed deer was not warranted.

Westcave

- Westcave Outdoor Discovery Center hosted 11,468 students, teachers and visitors during 2018-2019.
- Dawn Houston (Preserve researcher, FWS permitted biologist) and Westcave staff conducted golden-cheeked warbler territory mapping surveys on the tract and found three territories, one of which was successful, and one was parasitized (see attached report).
- Westcave continued participating in the BCP-wide golden-cheeked warbler banding and re-sighting project. The objective is to provide an accurate estimate of return rates, dispersal and survival for the GCWA. Two males were successfully banded. Of the two males banded in 2018, one was re-sighted in 2019.
- Staff successfully dispatched 1 female and 5 male brown-headed cowbirds during nesting season.
- Research efforts include citizen scientist programs: FeederWatch, NestWatch, Dragonfly Pond Watch, FrogWatch and Christmas Bird Count.
- Current non-citizen scientific research endeavors include: dung beetle research by Texas State University PhD student Andrea Pinon, University of Texas sponsored cave research, Colorado River Watch water quality monitoring, salamander surveys by Westcave staff and eDNA sampling performed by Dr. Andy Gluesenkamp with the San Antonio Zoo, cave faunal surveys conducted by Westcave staff with Travis County biologists, weather station installed by Barton Springs Edwards Aquifer Groundwater

Conservation District, fish surveys by LCRA biologists and two other aquatic biologists, and moss ecology survey performed by two Texas State University graduate students.

- Westcave staff continues general maintenance of boundaries, trails, non-native plant removal, prairie restoration work, hog trapping operations employed, pollinator garden upkeep, and maintaining fire lines.
- Ahrns Grove butterfly garden area was fenced, gated, planted and maintained.
- Bird boxes are erected and maintained during nesting season.
- Westcave has remained engaged with the surrounding community by hosting bi-annual roundtables socials with topics pertinent to the local community, and offering spring and fall programs including bird walks, wildflower and grass walks, night hikes, nature photography workshop and golden-cheeked warbler walks. All programs are led by local experts who are specialists in their field.
- The grand opening of the second bird blind occurred in October.
- Prescribed burn was conducted by Travis County Parks and seven other agencies in prairie restoration area (10.32 acres) in October. This was followed by reseeding with flowering forbs and native grasses.

Expenditures
LCRA expenditures (10/1/2018 to 9/30/2019): $4,564.00*
*Does not include expenditures by Westcave Preserve Corporation

CITY OF SUNSET VALLEY

The City of Sunset Valley entered a BCCP Managing Partner Agreement on 7 February 2014 and designated 21.585 acres, known as the Gaines Greenbelt, as BCP. A report of the monitoring and management activities conducted on the Gaines Greenbelt for FY19 is included as Appendix P.

THE NATURE CONSERVANCY OF TEXAS ANNUAL REPORT FOR BARTON CREEK HABITAT PRESERVE

Science / Stewardship

Annual surveys (point count) were completed for the golden-cheeked warblers (GCWA) to determine population densities. The GCWA population remains stable,

no black-capped vireos (BCVI) was observed on the property during the 2019 season. Brown-headed cowbirds were removed from the property by shooting.

Preserve staff and TPWD public lands lottery hunters are helping to control the population of white-tailed deer in an effort to reduce browse and increase recruitment of Texas Oaks. Population is estimated through spot-light surveys, stand counts and camera surveys. Seven deer were harvested by 35 hunters.

Ongoing research projects included “Status of Fall Breeding and Overwintering Monarch Butterflies in Texas” (Oklahoma State University), “KR Bluestem Effects on Grasslands” (The Nature Conservancy / Global Impact Invader Network – GIIN), “Best Practices for Restoration as Biocontrol for the Invasive KR Bluestem in Central Texas Grasslands“ (Trinity University), “Geographic variation in floral traits, local pollinators, and genetic structure in *Castilleja sp.* (Northwestern University and Chicago Botanical Garden), and “Golden-cheeked Warbler Population Viability and Habitat Suitability within the Balcones Canyonlands Preserve” (City of Austin and Balcones Canyonlands Preserve).

A Bryophyte survey was conducted by Texas A&M University, a salamander survey was conducted by Texas Parks and Wildlife, and a survey was conducted by the Texas Forest Service for the “Forest Inventory and Analysis program”. The Houston Zoo collected insects and spiders to start colonies for displays and educational purposes.

Water flow data was collected on Barton Creek and water was sampled for chemistry data in two preserve wells by the Barton Springs/Edwards Aquifer Conservation District. Information collected is being used in a Western Travis County groundwater study.

Due to timing issues and burn bans, no prescribed fires were conducted during the reporting period.

Education/Outreach/Volunteers

The preserve hosted approximately 942 visitors, 351 volunteers totaling 934 hours of work, and 234 used the property for educational purposes. Groups included the Boy Scouts of America, Cub Scouts, Camp Champions of Marble Falls, Texas

Parks and Wildlife, Balconies Canyonlands Preserve visitors, Rose Hill Christian School – Tomball Texas, Callison Elementary TAG – Round Rock ISD, Akins Highschool Park Ranger Cadets – Austin ISD, Capital Area Master Naturalists, Balcones Master Naturalists, Audubon Society, University of Texas, University of Texas Lifelong Learning Group, and St. Edwards University.

Volunteer projects included removing old fencing, invasive species removal (Johnson grass – *Sorhum halepense*, Malta star-thistle – *Centaurea melitensis,* Chinaberry Tree – *Melia azedarach*, and *Ligustrum sp.*), trash pickup, trail maintenance, fire-line preparation, juniper removal, deer surveys, bird surveys, boundary monitoring, and infrastructure repair.

Expense Summary

Operations and maintenance cost spent on BCP for FY 2019 was $10,000.

TRAVIS AUDUBON SOCIETY

Travis Audubon Society owns and manages 715 acres at the Baker Sanctuary which are included as part of the BCP. In April 2015, Travis County purchased a conservation easement for Baker Sanctuary to ensure that the function and purpose of the Sanctuary will be secured in perpetuity. A report of the monitoring and management activities conducted on the Bakers Sanctuary for FY19 is included as Appendix Q.

LITERATURE CITED

City of Austin and Travis County. 1995. *Interlocal Cooperation Agreement between Travis County and the City of Austin Implementing the Balcones Canyonlands Conservation Plan-Shared Vision.*

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